



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

January 29, 2015

Gary J. Laughlin, Chief Nuclear Officer  
and Head of Operations  
URENCO USA  
P.O. Box 1789  
Eunice, NM 88231

SUBJECT: LOUISIANA ENERGY SERVICES, URENCO USA FACILITY – U.S. NUCLEAR  
REGULATORY COMMISSION INTEGRATED INSPECTION REPORT NUMBER  
70-3103/2014-005

Dear Mr. Laughlin:

This refers to the inspections conducted from October 1 through December 31, 2014, at the Louisiana Energy Services (LES), Urenco USA facility located in Eunice, New Mexico. The purpose of the inspections was to determine whether activities authorized under the license were conducted safely, and in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements. The enclosed report presents the results of these inspections. The inspection results were discussed with members of your staff at exit meetings held October 9, October 10, November 20, December 10, and December 11, 2014, for this integrated inspection report. No findings of significance were identified. One Unresolved Item was opened involving criteria for changes to licensing basis documents.

During the inspections, the NRC staff examined activities conducted under your license as they related to public health and safety, and to confirm compliance with NRC rules and regulations and with the conditions of your license. Areas examined during the inspections are identified in the enclosed report. Within these areas, the inspections consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The inspections covered the following areas; environmental protection, permanent plant modifications, radiation protection, radioactive waste management, nuclear criticality safety, operational readiness for Separations Building Module (SBM) 1005, and safety-related construction.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its Enclosure, will be made available electronically for public inspection in the NRC Public Document Room, or from the NRC's Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning these inspections, please contact us.

Sincerely,

*/RA/*

James A. Hickey, Chief  
Projects Branch 1  
Division of Fuel Facility Inspection

Docket No. 70-3103  
License No. SNM-2010

Enclosure:  
Inspection Report No. 70-3103/2014-005  
w/Attachment: Supplementary Information

cc: (See page 3)

G. Laughlin

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U. S. NUCLEAR REGULATORY COMMISSION  
REGION II

Docket No: 70-3103

License: SNM-2010

Report No: 70-3103/2014-005

Licensee: Louisiana Energy Services, L.L.C. (LES)

Facility: URENCO USA Facility (UUSA)

Location: Eunice, NM 88231

Dates: October 1 through December 31, 2014

Inspectors: B. Adkins, Senior Fuel Facility Inspector, DFFI (Sections B.3, C.1, D.7)  
S. Mendez, Fuel Facility Inspector, DFFI (Section C.1)  
N. Peterka, Fuel Facility Inspector, DFFI (Sections A.2, B.1)  
K. Kirchbaum, Fuel Facility Inspector, DFFI (Section B.2)  
T. Sippel, Fuel Facility Inspector, DFFI (Section A.1)  
L. Pitts, Senior Fuel Facility Inspector, DFFI (Section A.2)  
C. Oelstrom, Senior Construction Inspector, DCI (Sections D.3-D.6)  
P. Carman, Construction Inspector, DCI (Sections D.3-D.6)

Approved by: J. Hickey, Chief  
Projects Branch 1  
Division of Fuel Facility Inspection

Enclosure

## **EXECUTIVE SUMMARY**

Louisiana Energy Services, L.L.C., (LES), URENCO USA Facility (UUSA)  
NRC Integrated Inspection Report 70-3103/2014-005  
October 1 - December 31, 2014

Inspections were conducted by regional inspectors during normal shifts in the areas of environmental protection, permanent plant modifications, radiation protection, radioactive waste management, and nuclear criticality safety. Additionally, inspectors commenced the operational readiness review for Separations Building Module (SBM) 1005 and performed inspections to evaluate the quality assurance program implementation and Quality Level 1 (QL-1) safety-related construction activities. The inspectors performed selective examinations of licensee activities that were accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and a review of facility records.

### **Safety Operations**

- The licensee adequately implemented the Nuclear Criticality Safety Program, conducted audits and investigations, reviewed events, and maintained and implemented appropriate Nuclear Criticality Safety controls. (Section A.1)
- The inspectors performed portions of the operations readiness review of the systems, structures, and components designed to support safe operation of SBM-1005. (Section A.2)

### **Radiological Controls**

- The Radiation Protection program was implemented in accordance with the license application and regulatory requirements. (Section B.1)
- Radioactive waste activities were performed in accordance with regulatory requirements and procedures. (Section B.2)
- The Environmental Protection program was implemented in accordance with the license application and regulatory requirements. (Section B.3)

### **Facility Support**

- The Plant Modifications program was implemented in accordance with the license and regulatory requirements. (Section C.1)

### **Other Areas**

- Two violations, one licensee event report, and one inspector followup item were closed after review of licensee actions. (Section D.1)
- One Unresolved Item (URI) was opened to determine if the licensee's use of change processes is consistent with NRC regulations and the license. (Section D.2)
- The inspectors determined that the licensee implemented the requirements of the Quality Assurance Program Description (QAPD) for Item Relied on for Safety (IROFS) 27e (design feature of buildings containing UF<sub>6</sub> process systems for seismic, tornado, high wind, rood

snow load, and roof ponding and site flooding due to local intense precipitation) in the area of audits of the licensee, and audits of the licensee's primary contractor, Baker Concrete Construction. (Section D.3)

- The inspectors determined that the licensee implemented the requirements of the QAPD for IROFS 27e in the areas of design and engineering change control, including engineering change process as it related to engineering change requests, event reports, and non-conformances. (Section D.4)
- The inspectors determined the licensee implemented the requirements of the QAPD for IROFS 27e in the area of control of material, equipment, and services. (Section D.5)
- The inspectors determined the licensee implemented the requirements of the QAPD for IROFS 27e in the area of control of inspection, test control, and control of measuring and test equipment. (Section D.6).
- Structural concrete used in the construction of the UBC Crane rail foundations was properly installed in accordance with NRC license and regulatory requirements. (Section D.7)

**Attachment**

Key Points of Contact

List of Items Closed and Discussed

Inspection Procedures Used

Documents Reviewed (Partial)

Acronyms and Initialisms



## **REPORT DETAILS**

### **Summary of Plant Status**

During the inspection period, the licensee conducted routine plant operation of the operating Cascades. Construction and testing in some areas of Separation Building Modules (SBMs) 1001, 1003, 1005, and other applicable process areas continued in preparation for future operation of additional cascades and equipment.

### **A. Safety Operations**

#### **1. Nuclear Criticality Safety Program and Nuclear Criticality Safety Evaluations and Analyses (Inspection Procedures (IPs) 88015 & 88016)**

##### **a. Inspection Scope and Observations**

The inspectors evaluated the adequacy of the licensee's nuclear criticality safety (NCS) program and analyses to assure the safety of fissile material operations. The inspectors reviewed selected NCS documentation to determine that criticality safety of risk-significant operations was assured through engineered and administrative controls, with adequate safety margin and preparation and review by qualified staff. The selected NCS documentation included:

- EG-3-3200-01, "Nuclear Criticality Safety Evaluations," Revision (Rev.) 8,
- EG-3-3200-02, "ISA/Nuclear Criticality Safety Engineering Supervisor," Rev. 9,
- EG-5-3200-01, "UUSA User Guide for MONK 8A," Rev. 5,
- EG-3-3100-06, "Integrated Safety Analysis Process," Rev. 12.

The NCS analyses, evaluations, and supporting documents reviewed demonstrated adequate identification and control of NCS hazards to assure operations within subcritical limits through appropriate limits on controlled parameters. The analyses, evaluation, and supporting documents included:

- NCS-SCA-020, "Determination of SAFE-By-Design Mass for Various Enrichments," Rev.1,
- NCS-CSE-037, "Nuclear Criticality Safety Evaluation of the Multifunction Decontamination Train (MFDT),"
- NCS-CSA-005, "Nuclear Criticality Safety analysis of GEVS Units in the CRBD," Rev. 1.

The inspectors interviewed licensee criticality engineers, managers, and operators regarding operations, equipment, and controls. The inspectors reviewed selected NCS-related items relied on for safety (IROFS), including a detailed review of IROFS 16a, to determine that the performance requirements had been met for selected accident sequences.

The inspectors reviewed the records of 15 nuclear criticality safety inspections (NCSIs) completed since the last NRC NCS inspection, including records of the NCS findings identified during these NCSIs. The inspectors accompanied a senior licensee Nuclear Criticality Safety Engineer on the weekly NCSI of the Small Component Decontamination Train (SCDT). Deficiencies were noted by the licensee. The

inspectors observed that the NCSI was conducted in accordance with written procedures. The inspectors noted that NCS audits were focused on determining if plant operational requirements for the area or operation being audited, conform to those listed in the applicable NCS specification documents. The inspectors also observed that the licensee checked for open issues, reviewed the adequacy of control implementation, and examined equipment to determine if past evaluations remained adequate.

The inspectors reviewed the licensee response to a selection of recent internally-reported events. The inspectors determined that the licensee adequately evaluated whether or not these events were reportable to the NRC. The inspectors reviewed the progress of investigations and interviewed licensee staff regarding immediate and long-term corrective actions. The inspectors observed that internal events were investigated in accordance with written procedures, and appropriate corrective actions were assigned and tracked.

The inspectors observed the conduct of the IROFS 16a inspection and walked down of the SCDT and the Decontamination Room in the Cylinder Receipt and Dispatch Building (CRDB). The inspectors interviewed the involved operators and an NCS engineer after the operation. IROFS 16a is a sole IROFS that consists of two independent visual inspections for moderator in an uranium hexafluoride (UF<sub>6</sub>) cylinder prior to filling. The licensee credits it as an 'enhanced IROFS,' meaning special controls are applied to ensure independent checks, so that additional credit can be given when scoring the IROFS. The operators performed a pre-job brief and reviewed the procedure prior to performing the inspection. The inspectors observed that two operators conducted independent visual inspections as required by the IROFS boundary document and procedure, including following the procedural steps designed to ensure the inspections are independent of each other.

a. Conclusion

No findings of significance were identified.

2. Operations Readiness Review for Separations Building Module 1005 (IP 88020)

a. Inspection Scope and Observations

The inspectors conducted an in-office and onsite review of revised licensing documents and procedures to ensure they were updated to adequately reflect the future operations of SBM 1005. The inspectors reviewed changes to the ISA Summary and SAR. Appropriate changes were made to the ISA to update applicable accident sequences and IROFS to include SBM 1005. The inspectors verified that the associated revisions to the SAR reflected appropriate licensing, structure, system, and component updates. The following IROFS and their associated Boundary Documents (BDs') and Operations Requirements Manuals (ORMs) were reviewed by inspectors:

|           |   |
|-----------|---|
| IROFS 16a | Administratively Limit Moderator Mass in Cylinder                     |
| IROFS C21 | Flow Restriction for Vacuum Pumps Used for Sampling and/or Evacuation |
| IROFS 27e | Design Features of SBM and CRDB Structures                            |
| IROFS 30a | Limit Hydrocarbon Oil by Controlling Type Used                        |
| IROFS 30b | Limit Hydrocarbon Oil by Testing Prior to Adding to Pump              |
| IROFS 30c | Limit Hydrocarbon Oil by Testing Prior to Operation                   |

|              |   |
|--------------|---|
| IROFS 35     | Fire Rated Barriers   |
| IROFS 36a    | Limit Transient Combustible Loading in Uranic Areas                                       |
| IROFS 38     | Limit Cylinder Fill Mass to Ensure Cylinder Integrity Once Per Shift                      |
| IROFS 39a    | Limit Exposure by Requiring Evacuation of Area on Seismic Event                           |
| IROFS 39b    | Limit Exposure by Requiring Evacuation of Area on Fire Event                              |
| IROFS 39c    | Limit Exposure by Requiring Evacuation of Area on Release Event                           |
| IROFS 39d    | Limit Exposure by Requiring Evacuation of Area on CAB, SBM, and CRDB Severe Weather Event |
| IROFS 42     | Limit Cylinder Mass by Weight Prior to Placement in Autoclave                             |
| IROFS 50 b/c | Administratively Control Proximity of Vehicles by Use of Barriers                         |

No IROFS that are in place for SBMs 1001 and 1003 were added or deleted for the implementation of SBM 1005.

During the onsite review, the inspectors conducted a field walkdown of SBM 1005 to verify the status of in place construction related IROFS and the status of IROFS necessary for safe operation. Specific attention was paid to the licensee's installation of fire penetrations and seals for IROFS 35. The inspectors sampled completed internal conduit seals (ICS) by having the licensee remove the conduit covers so a visual inspection could be conducted. No issues were identified with the ICS observed. The inspectors discussed with the licensee their plans on implementing control of transient combustibles per IROFS 36a once the first phase of SBM 1005 is approved for operations and construction continues on the future phases. The inspectors verified that physical barriers were in place to control the proximity of vehicles to equipment per IROFS 50 b/c and IROFS 50 d/e.

The inspectors reviewed work packages for the installation of flow restrictors on applicable vacuum pumps for IROFS C21. The flow restrictors were procured separately from the vacuum pumps and must be installed and tamper sealed prior to initial operations for the applicable pumps. To ensure the flow restrictors are properly installed on the applicable vacuum pumps, the inspectors reviewed licensee procedure requirements and the associated operator training.

The inspectors discussed with the licensee the implementation of IROFS 27e, which credits the construction and design of SBM 1005 through a building inspection conducted prior to initial operation. After construction is completed and the surveillances associated with IROFS 27e have been performed, the inspectors will review the completed building inspection. This inspection will occur prior to the authorization to introduce UF<sub>6</sub> into SBM 1005 to ensure IROFS 27e was adequately implemented.

The inspectors reviewed a configuration change involving the removal of IROFS C21 for the tails evacuation pump/chemical traps being put in place for SBM 1005. The change involved the removal of accident sequence TT3-1, which only affects the tails evacuation pump/chemical traps after an evaluation that a postulated release of UF<sub>6</sub> would not result in an intermediate or high consequence event to a worker or the public per 10 CFR 70.61. The inspectors verified that the licensee addressed the impacts of the modification in the ISA and other safety program information developed in accordance with 10 CFR 70.62. The inspectors reviewed the applicable 70.72 evaluation performed by the licensee to verify that the licensee adequately assessed the modification and the possible safety impact. Also, the inspectors verified that the licensee adequately categorized the evaluated changes and performed all the necessary reviews.

The inspectors reviewed revised NCS analyses to ensure the documents were updated to reflect the future operation of SBM 1005, and that applicable accident scenarios were still bounded by the existing analyses. The inspectors also verified that where necessary, new controls were implemented to ensure the system remained within the approved margin of subcriticality. The inspectors noted a change to the design of the tails system for SBM 1005, which potentially affects NCS. To support operational requirements, SBM 1005 will utilize vacuum pumps with a greater volume than those in SBMs 1001 and 1003. As a result, these pumps require an analysis to show a critical mass of uranium cannot accumulate under credible normal and abnormal accident sequences. At the time the inspectors were on site, the licensee had not issued an approved analysis. Prior to authorization to introduce UF<sub>6</sub> into SBM 1005, criticality safety inspectors will review the approved analysis.

b. Conclusion

No violations of NRC requirements were identified.

**B. Radiological Controls**

1. Radiation Protection (IP 88030)

a. Inspection Scope and Observations

The inspectors reviewed the most recent self-assessments to verify that program performance was being reviewed, at least annually, to comply with 10 CFR 20.1101. The inspectors reviewed organization charts and interviewed licensee staff to determine if the radiation protection (RP) function's responsibilities and independence from operations were maintained, and to determine if any significant changes to the RP program were consistent with regulations and license requirements.

The inspectors reviewed a selection of procedures to determine if changes in the radiological protection procedures made since the last inspection were consistent with regulatory and license requirements.

During tours of radiologically controlled areas, the inspectors verified that workers complied with RP procedural requirements contained in Radiological Work Permits (RWPs) and area operating procedures. The inspectors verified the RWPs contained appropriate instructions and radiological protective measures. The inspectors observed workers and visitors signing into applicable RWPs. Additionally, the inspectors observed plant employees as they performed exit monitoring at the controlled area exit, and verified that monitoring instructions were followed at the exit point.

The inspectors observed and reviewed the daily operational response check records of several ratemeters/scalers and personnel contamination monitors and reviewed calibration records to verify that RP instruments and equipment were operable and maintained in accordance with license requirements and procedures.

The inspectors toured the CRDB, the SBM 1001, and the Uranium Byproduct Cylinder (UBC) Pad, to verify that radiological signs and postings accurately reflected radiological conditions. Areas were posted in accordance with 10 CFR Part 20. The inspectors verified that the Notice to Employees, NRC Form 3, was posted in a high traffic area in accordance with 10 CFR 19.11.

The inspectors toured the controlled area with an RP Technician and noted that personnel were following acceptable radiological protection and contamination control practices. The inspectors also observed a radiological survey of the UBC Pad with an RP Technician and noted the Pad was adequately posted as confirmed by the survey results. The inspectors reviewed licensee contamination control procedures and records and determined that surveys adequately evaluated the magnitude and extent of radiation levels in accordance with 10 CFR 20.1501.

The inspectors reviewed RP program-related corrective actions issued since the last inspection in 2013, and noted no significant issues of concern with licensee response actions.

The inspectors reviewed Radiation Safety Committee meeting minutes and determined that the committee was in compliance with the license requirements. The inspectors reviewed the 2013 As Low As Reasonable Achievable (ALARA) report and noted the highest individual exposure onsite for 2013 was 163 mRem, and the site collective dose was 2.704 Rem, with the individual doses below the regulatory limits.

b. Conclusion

No violations of NRC requirements were identified.

2. Radioactive Waste Management (IP 88035)

a. Inspection Scope and Observations

The inspectors evaluated whether the licensee had established and maintained adequate procedures and quality assurance programs, to ensure compliance with the requirements of 10 CFR Part 20 and 10 CFR Part 61, applicable to low-level radioactive waste form, classification, stabilization, and shipment manifests/tracking.

The inspectors reviewed procedures and observed performance of tasks related to radioactive waste handling and transfers. The procedures were clearly written and adequately delineated responsibilities related to radioactive waste management. IROFS information associated with radioactive waste handling was properly filled out and available during evolutions. The operators were familiar with their responsibilities and performed their tasks in accordance with facility procedures.

The inspectors reviewed the quality assurance program for radioactive waste management and determined that the licensee was performing the required audits. The findings from these audits were entered into the licensee's (CAP) for resolution.

The inspectors reviewed the licensee's program for classifying low-level radioactive waste. The inspectors reviewed the procedures for classifying waste as well as records relating to waste.

The inspectors performed walk downs of designated radioactive material storage areas in the SBMs and the CRDB. The storage areas had adequate postings to ensure that the proper material was being stored in the area and the material was safely stored in accordance with the nuclear criticality safety requirements. The containers were properly labeled to reflect their contents and were in good physical condition.

The inspectors reviewed IROFS associated with Radioactive Waste Management to verify these IROFS were adequate and being properly implemented. The following IROFS were walked down and reviewed as a part of this inspection.

IROFS14a and 14b - Administratively restrict proximity of vessels in non-designed locations containing enriched uranic material to ensure subcritical configuration.

IROFS 55a and 55b - Administratively limit the calculated tank uranic mass inventory to ensure a subcritical mass using bookkeeping procedures and by performing independent sampling and measurements.

b. Conclusion

No violations of NRC requirements were identified.

3. Effluent Control and Environmental Protection (IP 88045)

a. Inspection Scope and Observations

The inspectors reviewed program changes and procedures revised since the last inspection and verified that the program and procedures were in accordance with license requirements. The inspectors reviewed self-assessments and audits, and verified that identified corrective actions were adequately implemented. The inspectors verified that changes to the organizational structure in the area of environmental protection complied with license requirements.

The inspectors reviewed license requirements and determined that quality control of laboratory measurements was implemented in accordance with Safety Analysis Report (SAR) requirements.

The inspectors reviewed the semi-annual effluent reports for 2013, and determined that the licensee was in compliance with 10 CFR 70.59. The inspectors reviewed records of airborne and liquid effluents, observed operational equipment and activities, and determined that the licensee was in compliance with the license, approved procedures, and policies. The inspectors verified that gaseous effluent monitors were calibrated and functional checks were performed in accordance with 10 CFR 20.1501 and SAR requirements.

The inspectors reviewed the public dose assessment and determined that the total dose to the individual likely to receive the highest dose from licensed operation did not exceed the regulatory limit in 2013. The inspectors reviewed the airborne portion of the public dose assessment and verified the results complied with the ALARA constraint required by 10 CFR 20.1101(d). The inspectors reviewed the concentrations of liquid releases discharged to the sanitary sewer, and verified that the licensee complied with 10 CFR 20.2003.

The inspectors reviewed environmental monitoring stations including stationary air samplers and stack monitoring systems and determined that the sampling points complied with the license requirements. Also, the inspectors reviewed the sampling

results for soil, vegetation, surface water, groundwater, ambient air, and external radiation and determined that the sampling points and results were in compliance with license requirements.

The inspectors conducted a walkdown of the Pumped Extract Gaseous Effluent Ventilation System (PEGEVS)-1001 stack monitoring system and associated ventilation ductwork. The inspectors verified that the airborne effluent equipment and systems were operable and maintained in accordance with the licensee's program. The inspectors performed a detailed review of the stack monitoring system design and installation to verify compliance with the requirements of NRC Regulatory Guide 4.16, Monitoring and Reporting Radioactivity in Releases of Radioactive Materials in Liquid and Gaseous Effluents from Nuclear Fuel Reprocessing and Fabrication Plants and Uranium Hexafluoride Production Plants, and ANSI N13.1, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities.

The inspectors reviewed condition reports from the past 12 months and determined that the licensee identified environmental issues at an appropriate threshold, and entered them into their CAP.

b. Conclusion

No findings of significance were identified.

**C. Facility Support**

1. Permanent Plant Modifications (IP 88070)

a. Inspection Scope and Observations

The inspectors interviewed select managers, supervisors, and operators to verify that the licensee has established an effective configuration management system to evaluate, implement, and track permanent plant modifications (PPMs) that could affect safety.

The inspectors evaluated PPM procedure changes since the last PPM inspection to verify that the changes were consistent with license requirements including specific requirements related to configuration management. The inspectors reviewed EG-3-4100-12, Modifications, which is a new procedure that implements PPM for portions of the facility that have been turned over to the operations department. The purpose of the new procedure was to streamline the plant modifications process and to reflect a recent organizational change associated with the combining of the construction and plant engineering groups into a single engineering group. The new procedure was effective April 2014.

The inspectors reviewed completed Quality Level 1 (QL-1) PPM design packages since the last PPM inspection to ensure the as-built design installations were in conformance with the design drawings and project procedures. The inspectors conducted walkdowns to verify that field installations matched as-built design drawings. The inspectors reviewed PPM packages to determine if they received proper interdisciplinary reviews by impacted work groups prior to approval and that applicable post maintenance installation and testing requirements were adequately identified and performed. The inspectors

reviewed temporary modifications to ensure that temporary changes were properly controlled in accordance with project procedures including implementation of time limit requirements. The inspectors reviewed minor modifications to ensure that they were categorized appropriately and did not involve QL-1 activities.

The inspectors verified that the licensee's work control program had provisions to ensure adequate pre-job planning and preparation of PPM design packages. The inspectors determined that the configuration management system had adequate provisions to ensure that PPMs did not degrade the performance capabilities of IROFS, or other safety controls that are part of the safety design basis.

The inspectors verified that the licensee addressed baseline design criteria stipulated in 10 CFR 70.64 in the designs of PPM. The inspectors verified that the licensee addressed the impacts of modifications to the Integrated Safety Analysis (ISA), ISA Summary, and other safety program information developed in accordance with 10 CFR 70.62. The inspectors reviewed eighteen 70.72 evaluations performed by the licensee to verify that the licensee adequately assessed the modifications, and their possible safety impact. Also, the inspectors verified that the licensee adequately categorized the evaluated changes and performed all the necessary reviews.

The inspectors reviewed the licensee's problem identification and resolution program and verified that issues relating to the preparation and installation of PPMs were entered into the CAP and any associated corrective actions were adequate.

The inspectors reviewed the licensee's internal audits of the configuration management program. The inspectors determined that audits were being conducted and that findings were entered in the licensee's problem identification and resolution system.

b. Conclusion

No findings of significance were identified.

**D. Other Areas**

1. Follow-up on Previously Identified Issues

Violation (VIO) 70-3103/2014-202-01 and VIO 70-3103/2014-202-02 were previously discussed in Inspection Report 2013-202 (ADAMS Accession Number: ML14028A073) and Inspection Report 2014-202 (ADAMS Accession Number: ML14092A103).

a. (Closed) VIO 70-3103/2014-202-01: Inadequate Implementation of IROFS in the SCDT

This violation concerns the licensee's failure to establish adequate management measures to support IROFS 54a and IROFS 54b. In which, failures in the training associated with these IROFS and lack of access to the computer record system needed to properly perform the IROFS introduced a common mode failure. These administrative IROFS control the accumulation of U-235 mass in the SCDT, and are the only IROFS credited with preventing a criticality in the SCDT.



The inspectors reviewed the licensee's corrective actions. The licensee conducted retraining on procedural compliance and reporting a failure to follow procedures. The licensee also gave the operators access to their computer record system so that they can retrieve the proper tare weight of bottles from the system and required them to demonstrate this ability. In this way, the operators can independently retrieve the values needed to perform the IROFS. The licensee also gave the operators training on the records system, and simplified the human machine interface to make it easier to retrieve the values. To simplify the mass accounting procedure the licensee changed the procedure such that mass differences of 20 g or less (including zero or negative values) are simply assumed to be 1 gram of U-235. This is a conservative simplification based on the enrichment and form of the material. These assumed masses are then tracked on a runsheet. The inspectors walked down the SCDT and viewed the interior of the SCDT; no significant accumulations of uranic mass were visible. The inspectors viewed a runsheet, and confirmed that the operators were following the new process of entering 1 gram for small mass differences.

UUSA management also received training on the use of "the change management and the affirmation process to ensure readiness prior to implementation" of "infrequent or new and complex processes" (ER-2013-1877) because the licensee had identified the failure to perform this process as a reason for the event. This item is closed.

b. (Closed) VIO 70-3103/2014-202-02: Failure to report the loss of all IROFS preventing a criticality

In order to restore compliance with 10 CFR 70 App A(a)(4) and 70.50(b) the licensee formally reported the event discussed above on April 10, 2014, and submitted their 30-day Written Report on May 7, 2014 (tracked as Licensee Event Report (LER) 70-3103/2014-01). The first contributing cause identified by the licensee was that OP-3-1000-09, "Operability Determination," did not contain a definition of a failed or inoperable IROFS. To ensure that future events are properly reported the licensee revised the procedure. The inspectors reviewed the revised procedure and observed that licensee included the following definition of a Failed IROFS: "An IROFS that was not available or could not have performed its intended safety function while operable and applicable." In the detailed apparent cause evaluation (DACE) ER-2014-483 the licensee performed an extent of condition. No other examples were found that should have been reported. This item is closed.

c. (Closed) LER 70-3103/2014-01: UF<sub>6</sub> Present In The Small Component Decontamination Train

This report was issued by the licensee as an administrative corrective action in response to VIO 70-3103/2014-202-02 as discussed above. The inspectors reviewed the report and concluded that the report met the requirements of 10 CFR 70.50 and 10 CFR 70 App A(a)(4).

d. (Closed) Inspector Followup Item (IFI) 70-3103/2014-201-01: Track's UUSA corrective actions associated with ER-2014-513 for determining non credibility of backflow into the MFDT

The inspectors reviewed the licensee's revised procedure for determining the credibility of accident sequences (EG-3-3100-06, "Integrated Safety Analysis Process," Rev 12, dated September 30, 2014) against the NRC's guidance for determining credibility

provided in NUREG-1520 Section 3.4.3.2(9). EG-3-3100-06 states, in part, “A process deviation consist[ing] of a sequence of many [independent] unlikely events or errors for which there is no reason or motive” “could define an event as not credible.” Section 5.5.4(m) of EG-3-3100-06 incorporates the NRC’s guidance in NUREG-1520 Section 3.4.3.2(9). EG-3-3100-06 Attachment 9, “Events/Errors Credibility Determination Guidelines,” was revised to incorporate the licensee’s criteria for ‘unlikely,’ and the number of events or errors that must occur to be considered ‘many.’ The licensee’s criteria for ‘many’ and ‘unlikely’ had previously been informally documented in ER 2011-3681, but had not been properly incorporated into procedure. The licensee’s criteria are now formally documented in EG-3-3100-06 Attachment 9. The inspectors did not identify any safety concerns with the licensee’s criteria for ‘many’ or ‘unlikely.’

The inspectors sampled a number of sequences that had been screened out using these criteria. The inspectors reviewed the independence of the different events counted, the number of events, and the likelihood of each event. The inspectors did not identify any significant safety issues with the licensee’s use of their criteria to screen out sequences as non-credible; therefore, no violations were identified, and this IFI is closed.

## 2. Followup on Licensing Identified Issues

### a. (Opened) Unresolved Item (URI) 70-3103/2014-005-01: Criteria for Changes to Licensing Basis Documents

The inspectors identified an URI with changes the licensee made to the SAR using the License Condition (LC) 30 process in procedure LS-3-1000-06 (“Maintenance of License Basis Documents,” Rev 16). Section b.3 of LC-30 requires that changes to the SAR that result in a decrease in effectiveness of safety commitments as described in the SAR be submitted to the NRC for review and approval.

On November 5, 2013, as part of CC-LS-2013-004, the licensee removed, without NRC approval, the second paragraph of SAR Section 2.2.2: “At least one criticality safety engineer or the criticality safety officer will be available, with appropriate ability to be contacted by the Shift Manager, to respond to any routine request or emergency condition. This availability may be offsite if adequate communication ability is provided to allow response as needed.” The licensee considers this section of the SAR to contain descriptive text and no safety commitments. Instead, the licensee considers the safety commitments to be located in SAR Section 3.0, “Safety Program Commitments,” and “specific Chapter 5 sections including 5.0, 5.1.1 through 5.1.5, 5.2.1.2 through 5.2.1.7, and Tables 5.1.1 and 5.1-2” (LES 12-00074-NRC).

Correspondence LES 12-00074-NRC (dated May 24, 2012), is the license amendment request for the current version of LC-30 and is referenced in LC-30. In it, the licensee included the following definition for ‘safety commitment’: “An explicit statement in the SAR to take a specific action agreed to, or volunteered by, the licensee that defines a certain method of meeting a regulatory obligation.” Regulatory obligation is undefined, but the licensee staff indicated that they understood it to mean the requirements of the regulation.

During the November 2014 environmental inspection, the inspectors noted that the licensee made a number of changes to their environmental report using a process similar to that used for LC-30 to determine if the changes require a license amendment. This process is controlled by procedure LS-3-1000-11, Environmental Review and

Evaluation. The process is based on 10 CFR 51.22, which provides criterion for licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review. The inspectors noted that 10 CFR 51.22 is a process normally used by the Commission, not the licensee, to determine if an action can be exempted from an environmental review. The inspectors determined that additional information is needed to determine the applicability of using 10 CFR 51.22 as the basis for determining whether changes to the environmental report require pre-approval by the NRC.

The NRC is opening URI 70-3103/2014-005-01, "Criteria for Changes to Licensing Basis Documents" to determine if the licensee's use of change processes is consistent with NRC regulations and the license.

b. Conclusion

One URI was identified to determine if the licensee's use of change processes is consistent with NRC regulations and the license.

3. Quality Assurance: Program Development and Implementation (Inspection Procedure 88106)

a. Inspection Scope and Observations

The inspectors evaluated the quality assurance (QA) program and implementing procedures the licensee used to govern the performance of internal audits and external audits for suppliers and contractors. These audits are used to verify compliance with NRC regulations, and the requirements of the licensee's QAPD. The inspectors reviewed procedures for conducting audits, training, reviewing audit plans, documenting audit reports and performing surveillances. The inspectors reviewed the qualifications of personnel performing or managing quality-affecting activities, including audits. The inspectors also evaluated the licensee's audits conducted since the last inspection, including audits for Baker Concrete Construction, the primary contractor on site. In addition, the inspectors interviewed the licensee's QA organization representatives regarding audits and qualifications.

The inspectors observed that audits were scheduled, tracked and performed in a timely manner for the licensee and Baker Concrete Construction. The inspectors observed audit results documented for scheduled audits.

The inspectors determined that the licensee implemented the requirements of the QAPD in the area of audits of the licensee, and audits of the licensee's primary contractor, Baker Concrete Construction.

b. Conclusion

No findings of significance were identified.

4. Quality Assurance: Design and Document Control (IP 88107)

a. Inspection Scope and Observations

An inspection of the licensee's design control program for IROFS 27e, civil construction safety design features for SBM 1005, was performed. The inspection focused on work activities associated with the UF<sub>6</sub> handling area of the SBM 1005 facility, with an emphasis on the design and engineering change control and erection of structural components, to verify that the design process was in accordance with QA plan commitments and requirements.

The inspectors interviewed engineering staff and managers and reviewed relevant documentation to determine if an effective design control program was established and implemented. The inspectors reviewed control of engineering evaluation and design change inputs to determine if documentation, review and approval commitments were met. The inspectors reviewed the design process for translating engineering evaluation and design change inputs into construction, testing, inspection, and examination requirements. The inspectors reviewed the design and engineering change control program to determine if design and engineering changes were controlled in accordance with QA plan commitments and requirements.

Specifically, the inspectors reviewed implementing procedures, design criteria documents, engineering change requests, non-conformance reports, design specifications, structural calculations, construction specifications, and construction work packages to determine if work associated with IROFS 27e was performed in accordance with regulatory requirements and licensee commitments.

The inspectors determined that the licensee implemented the requirements of the QAPD in the areas of design and engineering change control, including engineering change process as it related to engineering change requests, event reports, and non-conformances.

b. Conclusion

No findings of significance were identified.

5. Quality Assurance: Control of Material, Equipment, and Services (IP 88108)

a. Inspection Scope and Observations

The inspectors reviewed the QA program and procedures to verify whether the procurement of QL-1 material, equipment, and services were controlled to assure conformance with specified technical and QA requirements. The inspectors performed a review of the licensee's processes and procedures for controlling procurement used during the construction of the SBM 1005 UF<sub>6</sub> Handling Area and the receipt of Autoclaves 4 and 5.

The inspectors reviewed the licensee's approved suppliers list (ASL) and procedures for evaluating and selecting suppliers and subcontractors. The inspectors reviewed a sample of evaluations and audits performed on contractors associated with QL-1 construction and procurement. The inspectors verified that the methods for accepting

supplier-subcontractor-furnished material, equipment, and services were in accordance with approved procedures, and the requirements for training and qualification of QA auditors and evaluators were properly followed.

The inspectors reviewed a sample of procurement documents and observed the storage area of QL-1 material associated with the construction of the SBM 1005 UF<sub>6</sub> Handling Area and the receipt of Autoclaves 4 and 5. The inspectors verified receipt inspection and material control was performed by qualified personnel using approved procedures. The inspectors determined the licensee had a process for identifying and storing material to ensure that traceability is established and maintained.

The inspectors reviewed the licensee's processes for controlling items that did not conform to specified requirements and preventing inadvertent installation or use of nonconforming materials, parts, or components. The inspectors verified that the licensee's process for controlling nonconforming items included identification, documentation and evaluation, segregation, and disposition.

b. Conclusion

No findings of significance were identified.

6. Quality Assurance: Inspection, Test Control, and Control of Measuring and Test Equipment (IP 88109)

a. Inspection Scope and Observations

The inspectors reviewed the licensee's QA program and procedures to determine whether inspections and tests performed by the licensee and Baker Concrete Construction during the construction of the SBM 1005 UF<sub>6</sub> Handling Area and the receipt of Autoclaves 4 and 5 were planned and executed in accordance with requirements. Additionally, the inspectors selected elements associated with measuring and test equipment (M&TE) used during QL-1 activities to verify controls were in accordance with requirements.

The inspectors reviewed the QAPD and procedures associated with inspection planning and inspection hold points. A sample of three work packages associated with the construction of the SBM 1005 UF<sub>6</sub> Handling Area were reviewed to verify hold points were indicated in the work plan documents, and that inspection and test results were documented and conformed to the acceptance criteria. Additionally, the review verified that inspections were performed by personnel other than those who performed or directly supervised the work being inspected. The inspectors reviewed a sample of receipt inspections for components and material used for Autoclaves 4 and 5 and the construction of the SBM 1005 UF<sub>6</sub> Handling Area. The inspectors verified that the statistical sampling methods used were in accordance with the QAPD and approved procedures.

The inspectors reviewed a sample of non-destructive examination (NDE) procedures and documents associated with the construction of the SBM 1005 UF<sub>6</sub> Handling Area. The inspectors reviewed the NDE acceptance criteria identified in implementing procedures to verify compliance with project requirements. The inspectors verified that the examinations were performed by qualified personnel.

Additionally, the inspectors reviewed the training and qualification records of nine quality assurance personnel performing NDE and material control inspections for the construction of the SBM 1005 UF<sub>6</sub> Handling Area and receipt of Autoclaves 4 and 5.

The inspectors compared these records to approved procedures and requirements and verified that the quality assurance personnel sampled met the training and qualification requirements. The inspectors reviewed a sample of six welder qualifications and verified that these personnel met the qualification requirements for the work performed on the SBM 1005 UF<sub>6</sub> Handling Area.

The inspectors reviewed the licensee's and Baker's M&TE procedures to determine if they were in compliance with the licensee's approved QA plan. The inspectors performed a visual inspection of M&TE, including those used during the construction of the SBM 1005 UF<sub>6</sub> Handling Area and receipt of Autoclaves 4 and 5. The M&TE was inspected for the appropriate identification markings, calibration date, and calibration due date. The inspectors reviewed equipment usage logs and storage conditions to verify that M&TE was properly handled and stored to maintain accuracy and accountability, and that out-of-calibration M&TE was properly controlled. The inspectors reviewed a sample of calibration certificates to verify that the M&TE was calibrated using procedures traceable to known industry standards, and that the calibrations were documented in accordance with approved policies and procedures.

b. Conclusion

No findings of significance were identified.

7. Structural Concrete Activities (IP 88132)

a. Inspection Scope and Observations

The inspectors reviewed work package 1400-CIVIL-822-005, UBC Pad – Rail Footings & HDPE Pipe Sleeves to determine if the licensee followed proper work control practices for concrete placements associated with the UBC Pad rail footings and the crane transformer fire walls. The inspectors verified that the work package contained the proper level of detail for Quality Level 1 (QL-1) concrete including detailed work steps, quality assurance hold points, test records, and quality control and engineering signoffs prior to placement.

The inspectors reviewed completed 28-day cylinder break test reports to assure the concrete met the required compressive strength as specified in the design reports. The inspectors reviewed concrete batch test reports to ensure the concrete met the required specifications for air content, density, temperature, and slump.

The inspectors verified that the placement specification adequately implemented the requirements of American Concrete Institute (ACI)-349, Code Requirements for Nuclear Safety-Related Concrete Structures and Commentary with regards to concrete mixing and placement. The inspectors reviewed completed batch tickets to ensure the concrete mix was consistent with the established mix design specified in Urenco Specification LES-S-S-03311-R4, Concrete Mix Design.

The inspectors conducted a field walkdown of installed rebar to determine if it was installed in accordance with approved drawings and construction specifications. The inspectors verified items such as proper rebar spacing, rebar size, clear cover, cleanliness, and lap splice length.

The inspectors verified that the concrete contractor, Baker Concrete Construction Contractors Inc., was listed on the licensee's ASL for the placement of QL-1 concrete.

The inspectors reviewed receipt inspection reports for rebar including certified material test reports for the J-hooks and nuts for compliance with American Society of Testing and Materials (ASTMs) standards for chemical properties, physical properties, and dimensions.

The inspectors observed installation of the UBC crane transformer firewalls. The inspectors verified that the physical dimensions of the firewalls met the dimensional requirements specified on the design drawings.

b. Conclusion

No findings of significance were identified.

**E. Exit Meetings**

The inspection scope and results were summarized to senior licensee representatives and staff on October 9, October 10, November 20, and December 11, 2014. The inspectors conducted a second exit meeting with the licensee on December 10, 2014, to inform the licensee that the NRC was opening a URI to determine if the licensee's use of change processes is consistent with NRC regulations and the license. Proprietary information was discussed but not included in the report.

## **SUPPLEMENTARY INFORMATION**

### **1. KEY POINTS OF CONTACT**

| <u>Name</u>  | <u>Title</u>   |
|--------------|--|
| T. Anderson  | RP Technician  |
| A. Anya      | RP Technician  |
| W. Aregood   | Senior Fire Protection Engineer / Design                             |
| R. Boler     | Baker QA/QC Manager  |
| M. Conley    | ISA/NCS Manager  |
| S. Cowne     | Head of Compliance   |
| D. Day       | Sealant Specialist QA Manager  |
| A. Gonzalez  | Systems Engineering  |
| A. Hoversten | Projects Operations Support Manager                                  |
| A. Johnson   | Licensing and Performance Assessment Manager                         |
| T. Knowles   | Licensing and Performance Assessment Manager/Acting Security Manager |
| J. Labuda    | Fire Protection Officer  |
| D. Lemmons   | Plant Engineer   |
| M. McGovern  | Chemistry Services Manager   |
| K. Miller    | Engineering Supervisor Phase III                                     |
| R. Medina    | Licensing Specialist   |
| J. Muth      | Recycling Manager  |
| R. Page      | Plant Projects Manager   |
| J. Rickman   | Licensing Specialist   |
| A. Riedy     | ISA Engineer   |
| G. Schnell   | Acting Radiation Protection Manager                                  |
| S. Scott     | Engineering Manager  |
| C. Slama     | Licensing Project Manager  |
| W. Terry     | Environmental Analysis Supervisor                                    |
| C. Woods     | Urenco Field Engineer  |

Other licensee employees contacted included engineers, technicians, production staff, and office personnel.

### **2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

|                     |     |   |
|---------------------|-----|---|
| 70-3103/2014-005-01 | URI | Criteria for Changes to Licensing Basis Documents (Section D.2) |
|---------------------|-----|---|

#### Closed

|                     |     |   |
|---------------------|-----|---|
| 70-3103/2014-202-01 | VIO | Inadequate Implementation of IROFS in the SCDT (Section D.1)  |
| 70-3103/2014-202-02 | VIO | Failure to Report the Loss of All IROFS Preventing a Criticality (Section D.1)  |
| 70-3103/2014-01     | LER | UF <sub>6</sub> Present In The Small Component Decontamination Train (Section D.1)  |
| 70-3103/2014-201-01 | IFI | Track UUSA's corrective actions associated with ER-2014-513 for determining non credibility of backflow into the MFDT (Section D.1) |

Attachment



### 3. INSPECTION PROCEDURES USED

|       |  |
|-------|--|
| 88015 | Nuclear Criticality Safety Program   |
| 88016 | Nuclear Criticality Safety Evaluations and Analyses                          |
| 88020 | Operational Safety   |
| 88030 | Radiation Protection   |
| 88035 | Radioactive Waste Management   |
| 88045 | Effluent Control and Environmental Protection                                |
| 88070 | Permanent Plant Modifications  |
| 88106 | Quality Assurance: Program Development and Implementation                    |
| 88107 | Quality Assurance: Design and Document Control                               |
| 88108 | Quality Assurance: Control Materials, Equipment and Services                 |
| 88109 | Quality Assurance: Inspection, Test Control & Control of Measuring Equipment |
| 88132 | Structural Concrete Activities   |

### 4. DOCUMENTS REVIEWED (PARTIAL LIST)

#### Records:

NCS-SCA-020, "Determination of SAFE-By-Design Mass for Various Enrichments," Rev. 1  
NCS-CSE-037, "Nuclear Criticality Safety Evaluation of the Multifunction Decontamination Train (MFD),"  
NCS-CSA-005, "Nuclear Criticality Safety analysis of GEVS Units in the CRBD," Rev. 1  
ISA-MEM-048, "Gaseous Effluent Vent Systems (GEVS) HAZOP and Risk Determination Analysis," Rev. 3, dated April 23, 2013  
70.72(c) Tracking Number: 2014-0114, "Operator Workaround 2014-549," Rev. 0  
"2nd Quarter Trend Report 2014," dated July 28, 2014  
LES-12-00074-NRC, "LAR-12-04, Revision to License Condition 30 of LES Materials License SNM-2010," dated May 24, 2012  
70.72(c) Tracking Number: 2012-0427, "Operator workaround 2012-3208," Rev. 0  
PCR-2013-088, "Change Visual Inspection Criteria for 30b cylinders per IROFS 16a," dated June 6, 2013  
NEF-BD-54a, "Administratively Limit the Calculated SCDT Uranic Mass Inventory," Rev. 0  
NEF-BD-16a, "Administratively Limit Moderator Mass in Cylinder," Rev. 8  
OSIROFSQC00100, "Items Relied On For Safety (IROFS) and Operating Requirements Manual (ORM)," Rev. 2  
NCS-CSE-28, "NCSE of the Small Component Decon Train," Rev. 0  
ISA-MEM-032, "Decontamination System HAZOP and Risk Determination Analysis, with Supplemental Information on LECTS," Rev. 4  
ISA-MEM-034, "Potential Accident Sequence Following a Cascade Dump in SBM-1001 and 1003," Rev. 2.  
CC-LS-2013-0004, "Title elimination of Criticality Safety Officer and Fire Protection Officer," Rev. 0  
70.72(c) Tracking #: 2013.0526  
NCSI-14-0015, "IROFS 16a Cylinder Visual Inspection," dated April 9, 2014  
NCSI-14-0016, "NCS Postings (excluding CAB & SBM-1003 east wall)," dated April 18, 2014  
NCSI-14-0017, "NCS Cabinets," dated April 25, 2014  
NCSI-14-0018, "LECTS Room," dated May 2, 2014  
NCSI-14-0019, "1001 and 1003 PX GEVS, LX GEVS, CRDB GEVS," dated May 8, 2014  
NCSI-14-0020, "CAAS Audibility Coverage Check in SMB 1005 and USM," dated May 13, 2014  
NCSI-14-0021, "1003/1004 PSC," dated May 23, 2014

NCSI-14-0022, "1003-1004 Condensate Drip pans," dated May 29, 2014  
 NCSI-14-0024, "UF6 Handling Areas, SBM-1001 and 1003," dated June 13, 2014  
 NCSI-14-0025, "CAAS detector locations," dated June 20, 2014  
 NCSI-14-0026, "Cascade Halls AU1-3," dated June 27, 2014  
 NCSI-14-0027, "IROFS 16a pressure check," dated July 3, 2014  
 NCSI-14-0028, "1001/1002 and Extension PSC," dated July 10, 2014  
 NCSI-14-0029, "Cascade Hall AU4," dated July 18, 2014  
 NCSI-14-0039, "Ventilated/LECTS Room," dated September 23, 2014

Procedures:

CH-3-4000-04, "Sub-Sampling of UF6," Rev. 7, dated July 23, 2014  
 EG-3-3200-01, "Nuclear Criticality Safety Evaluations," Rev. 8, dated September 10, 2014  
 EG-3-3200-02, "ISA/Nuclear Criticality Safety Engineering Supervisor," Rev. 9, dated September 17, 2014  
 EG-5-3200-01, "UUSA User Guide for MONK 8A," Rev. 5, dated June 25, 2014  
 EG-3-3100-06, "Integrated Safety Analysis Process," Rev. 12, dated September 30, 2014  
 LS-3-1000-06, "Maintenance of License Basis Documents," Rev. 16, dated August 12, 2014  
 OD-3-1000-09, "Operability Determination," Rev. 9, dated September 15, 2014  
 RP-3-4000-29, "Operation of the Ludlum Model 375 Area Radiation Monitor," Rev. 1, dated October 28, 2013  
 RW-3-2000-05, "Uranium Waste Mass Bookkeeping," Rev. 1, dated August 16, 2013  
 FP-3-1000-04, Fire System or Feature Impairment, Rev. 15, dated September 3, 2014  
 FP-3-2000-04, IROFS35 Weekly Fire Door Inspection and IROFS35/36a Combustibles Control Inspection – SBM, Rev. 11, dated November 1, 2014  
 EG-3-5200-01, IROFS27e Structural Inspection Surveillance, Rev. 7, dated December 10, 2013  
 MA-3-0400-03, Installation and Verification of Flow Restriction Orifice (IROFSC21), Rev. 1, dated October 5, 2011  
 MA-3-0400-05, Calibration and Adjustment of IROFS16a Pressure Transducers, Rev. 0, dated May 9, 2014  
 MA-3-1000-02, Calibration and Control of Measuring and Test Equipment, Rev. 8, dated October 2, 2014  
 MA-3-2000-01, PFPE Oil Sampling, Rev. 2, dated September 11, 2013  
 MA-3-2000-03, Oil Addition to Vacuum Pumps, Rev. 4, dated September 11, 2013  
 MA-3-2826-01, IROFS35 Fire Barrier Penetration Seals Inspection, Rev. 7, dated December 3, 2014  
 OP-3-0420-01, Product System, Rev. 29, dated September 29, 2014  
 OP-3-0470-01, Liquid Sampling System, Rev. 15, dated September 12, 2014  
 OP-3-1000-16, IROFS50b External Boundary Control, Rev. 9, dated February 3, 2014  
 OP-3-1000-17, IROFS50c External Boundary Control, Rev. 9, dated February 3, 2014  
 OP-3-3300-01, Operations Surveillance Procedure, Rev. 24, dated July 11, 2014

Condition Reports Written as a Result of the Inspection:

ER 2014-1679, U-236 not being reported in effluent reports, dated November 19, 2014  
 ER 2014-1683, Chemistry Manager Job Description, dated November 20, 2014  
 ER 2014-1686, Questions Concerning Calculation Used to Verify Basis of Sampling Locations in GEVS Stack, dated November 20, 2014  
 ER 2014-1690, SAR Section 9.2.2.1 Not Followed, dated November 20, 2014  
 ER 2014-1689, SARER Reports all Stack Release from Pumped GEVS, dated November 20, 2014  
 ER 2014-1470, SAR Changes in CC-LS-2013-0004  
 ER 2014-1472, SAR issue identified during IDR of CC-LS-2013 was not captured in an ER

ER 2014-1473, Procedure not revised for minor mod changes  
 ER 2014-1477, NRC observation related to evacuation zone for criticality anomalous condition

ER-2014-1666, Procedure allows scales to be “re-zeroed” following the use of weight standard, dated November 18, 2014

ER 2014-1324

ER-2014-1470, “SAR Changes in CC-LS-2013-0004,” dated October 9, 2014

ER-2014-1472, “SAR issued identified during IDR of CC-LS-2013-0004 was not captured in an ER,” dated October 9, 2014

ER-2014-1477, “NRC observation related to evacuation zone for Criticality Anomalous Condition,” dated October 9, 2014

ER 2014-1480, Conflicting information on Specs for UBC Crane Concrete Mix Design

#### Condition Reports Review:

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| 2014-1048 | 2014-970  | 2014-733  | 2014-1565 |
| 2014-1155 | 2014-1197 | 2014-757  | 2012-3008 |
| 2014-939  | 2014-578  | 2014-1432 | 2013-2102 |
| 2014-639  | 2014-962  | 2014-1515 | 2013-2302 |
| 2014-1314 | 2014-19   | 2014-576  | 2014-58   |
| 2014-604  | 2014-744  | 2013-1882 | 2013-2201 |
| 2013-2259 | 2014-710  | 2013-1877 | 2013-1943 |
| 2013-1944 | 2014-457  | 2014-578  | 2014-571  |
| 2014-795  | 2014-639  | 2014-822  | 2014-877  |
| 2014-950  | 2014-992  | 2014-1161 | 2014-1202 |
| 2014-1372 | 2014-1373 | 2014-1374 | 2013-483  |
| 2013-1877 | 2013-2295 | 2014-482  | 2014-483  |
| 2014-513  | 2014-540  | 2014-541  | 2014-549  |
| 2014-744  | 2014-922  | 2014-1203 | 2014-1125 |
| 2014-65   | 2014-931  |           |           |

#### Other Documents:

Work Packages 1000104081 and 10001172010, IROFS C21 Installation

CC-EG-2013-0066, LBD Updates for SBM-1005 Design, Rev. 1, dated November 18, 2014

CC-EG-2014-0004, Equipment Configuration Specifications: UF6 Resistant Root Pumps, Rev. 0, dated November 18, 2014

CC-EG-2014-0150, Removal of IROFS C21 from Tails Evacuation Pump/Chemical Trap Set in all SBMs, Rev. 0, dated November 21, 2014

CC-OP-2014-0007, Changes to Phased Operations to Support SBM-1005, Rev. 0, dated November 21, 2014

32-2400503-06-LES, Attachment J, ISA Consequence Assessments for Airborne Releases Attachment J: Miscellaneous Accident Scenarios, Rev. 02, dated August 12, 2014

ISA-IAD-0017, Assessment of Releases from Product Vent or Feed Purification Chemical Trap and Pump Sets due to Blockage and Seal Failure (With supplemental Assessment for Tails Evacuation Pump Trap Set), Rev. 0, 09/15/14

NCS-CSA-006, Criticality Safety Analysis of the Product Vent Pump and Chemical Trap Set, Rev. 8

NEF-BD-16a, Administratively Limit Moderator Mass in Cylinder, Rev. 8

NEF-BD-27e, Design Features of SBM and CRDB Structures, Rev. 5

NEF-BD-30a, Limit Hydrocarbon Oil by Controlling Type Used, Rev. 2

NEF-BD-30b, Limit Hydrocarbon Oil by Testing Prior to Adding to Pump, Rev. 2

NEF-BD-30c, Limit Hydrocarbon Oil by Testing Prior to Operation, Rev. 3

NEF-BD-035, Fire Rated Barriers, Rev. 15  
 NEF-BD-36a, Limit Transient Combustible Loading in Uranic Areas, Rev. 14  
 NEF-BD-38, Limit Cylinder Fill Mass to Ensure Cylinder Integrity Once per Shift, Rev. 6  
 NEF-BD-39a, Limit Exposure by Requiring Evacuation of Area on Seismic Event, Rev. 8  
 NEF-BD-39b, Limit Exposure by Requiring Evacuation of Area on Fire Event, Rev. 9  
 NEF-BD-39c, Limit Exposure by Requiring Evacuation of Area on Release Event, Rev. 7  
 NEF-BD-39d, Limit Exposure by Requiring Evacuation of CAB, SBM, and CRDB on Severe Weather Event, Rev. 6  
 NEF-BD-42, Limit Cylinder Mass by Weight Prior to Placement in Autoclave, Rev. 3  
 NEF-BD-50b, Administratively Control Proximity of Vehicle by Use of Barriers, Rev. 7  
 NEF-BD-50c, Administratively Control Proximity of Vehicle by Use of Barriers, Rev. 7  
 NEF-BD-50d, Administratively Control Proximity of Internal Construction Vehicles in the UF<sub>6</sub> Handling Area by Use of Barriers, Rev. 7  
 NEF-BD-50e, Administratively Control Movement of Internal Construction Vehicles in the UF<sub>6</sub> Handling Area by Use of Spotters, Rev. 7  
 NEF-BD-C21, Flow Restriction for Vacuum Pumps Used for Sampling and/or Evacuation, Rev. 3  
 ORM 3430-2, Flow Restriction in Tails Evacuation Vacuum Pump/Trap Set, Rev. 0  
 ORM 3600-1, Worker Evacuation, Rev. 6  
 ORM 3600-4, Administratively Limit Moderator Mass in Product Cylinder, Rev. 1  
 ORM 3600-5, Limit Hydrocarbon Oil (Moderator Mass) in Enriched Uranium Product, Rev. 2  
 ORM 3600-8, Limit Cylinder Fill Mass, Rev. 3  
 ORM 3600-10, Limit Product Cylinder Fill Mass, Rev. 1  
 ORM 3600-18, Administratively Limit Transient Combustible Loading (SBM, ICC, and CRDB), Rev. 8  
 ORM 3600-28, Administratively Control Site Construction Vehicles near the Areas of Concern, Rev. 4  
 ORM 3600-29, Administratively Control Internal Construction Vehicles within the SBM UF<sub>6</sub> Handling Area(s), Rev. 4  
 ORM 3700-1, Design Features to Ensure SBM, ICC, and CRDB Superstructure or Shell Integrity, Rev. 5  
 ORM 3700-2, Fire Rated Barriers, Rev. 6

## **5. ACRONYMS AND INITIALISMS**

|       |  |
|-------|--|
| ACI   | American Concrete Institute                |
| ALARA | As Low As Reasonably Achievable            |
| ASL   | Approved Suppliers List                    |
| ASTM  | American Society for Testing and Materials |
| BD    | Boundary Document                          |
| CAP   | Corrective Action Program                  |
| CRDB  | Cylinder Receipt and Dispatch Building     |
| DACE  | Detailed Apparent Cause Evaluations        |
| ER    | Event Report                               |
| ICS   | Internal Conduit Seal                      |
| IFI   | Inspector Follow-up Item                   |
| IROFS | Items Relied on For Safety                 |
| ISA   | Integrated Safety Analysis                 |
| LC    | License Condition                          |
| LER   | Licensee Event Report                      |
| M&TE  | Measuring & Test Equipment                 |
| NCS   | Nuclear Criticality Safety                 |

|                 |  |
|-----------------|--|
| NCSIs           | Nuclear Criticality Safety Inspections             |
| NDE             | Non-Destructive Examination                        |
| ORMs            | Operations Requirement Manuals                     |
| PEGEVS          | Pumped Extract Gaseous Effluent Ventilation System |
| PPM             | Permanent Plant Modifications                      |
| QA              | Quality Assurance                                  |
| QAPD            | Quality Assurance Program Description              |
| QL-1            | Quality Level-1                                    |
| RP              | Radiation Protection                               |
| RWPs            | Radiation Work Permits                             |
| SAR             | Safety Analysis Report                             |
| SBM             | Separations Building Module                        |
| SCDT            | Small Component Decontamination Train              |
| UBC             | Uranium Byproduct Cylinder                         |
| UF <sub>6</sub> | Uranium Hexafluoride                               |
| URI             | Unresolved Item                                    |
| VIO             | Violation  |